

TITLE

**LEAKAGE NULLING RECEIVER CORRELATOR STRUCTURE AND
METHOD FOR ULTRA WIDE BANDWIDTH COMMUNICATION
SYSTEM**

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ABSTRACT OF THE DISCLOSURE

A receiver correlator structure for an ultra wide bandwidth communication system includes an antenna, a mixer, a bandpass filter, and a convertor. The receiver receives, via the antenna, an ultra wide bandwidth signal comprising a sequence of wavelets of particular shapes and positions, and transmits the received ultra wide bandwidth signal to the mixer. The mixer also receives and mixes with the received ultra wide bandwidth signal a local ultra wide bandwidth signal comprising a sequence of wavelets of particular shapes and positions correlated to the received ultra wide bandwidth signal. The bandpass filter removes the DC components from the mixed signal, and provides the resultant signal to the convertor. The receiver structure eliminates the local ultra wide bandwidth signal AC bias and DC bias terms and 1/f noise, yet detects long sequences of logical 1's and 0's, and allows operation with reduced bandwidth convertors.